

What is claimed is:

1. A device for impacting a penetrating member against the stratum corneum comprising:

a body having a first end and a second end;

said first end adapted to receive the penetrating member;

a piston slidably disposed within said body for impacting the penetrating member against the stratum corneum;

an impact spring adapted to provide an impact force to the piston and bias said piston out of said first end of said body; wherein said impact spring is energized when said piston is further disposed within said body;

a latching mechanism wherein said latching mechanism releasably engages said piston with said body after said piston has been sufficiently disposed within said body; and

a releasing mechanism for disengaging said latching mechanism whereby said impact spring impacts said piston against the penetrating member forcing the penetrating member into said stratum corneum.

2. A device for impacting a penetrating member against the stratum corneum comprising:

a body having a first end and a second end;

said first end adapted to receive the penetrating member;

a piston slidably disposed within said body for impacting the penetrating member against the stratum corneum;

an impact spring adapted to provide an impact force to the piston and bias said piston out of said first end of said body; wherein said impact spring is energized when said piston is further disposed within said body;

a latching mechanism wherein said latching mechanism releasably engages said piston with said body after said piston has been sufficiently disposed within said body;

a releasing mechanism for disengaging said latching mechanism whereby said impact spring impacts said piston against the penetrating member forcing the penetrating member into said stratum corneum; and

wherein said body and piston are adapted to be releasably engaged by the use of a single hand.

3. A device for impacting a penetrating member against the stratum corneum comprising:

a body having a first end and a second end;

said first end adapted to receive the penetrating member;

a piston slidably disposed within said body for impacting the penetrating member against the stratum corneum;

an impact spring adapted to provide an impact force to the piston and bias said piston out of said first end of said body; wherein said impact spring is energized when said piston is further disposed within said body;

a latching mechanism wherein said latching mechanism releasably engages said piston with said body after said piston has been sufficiently disposed within said body;

a releasing mechanism for disengaging said latching mechanism whereby said impact spring impacts said piston against the penetrating member forcing the penetrating member into said stratum corneum; and

wherein the latching mechanism includes interengaging latch members on the body and piston.

4. A device for impacting a penetrating member against the stratum corneum comprising:

a body having a first end and a second end;

said first end adapted to receive the penetrating member;

a piston slidably disposed within said body for impacting the penetrating member against the stratum corneum;

an impact spring adapted to provide an impact force to the piston and bias said piston out of said first end of said body; wherein said impact spring is energized when said piston is further disposed within said body;

a latching mechanism wherein said latching mechanism releasably engages said piston with said body after said piston has been sufficiently disposed within said body;

a releasing mechanism for disengaging said latching mechanism whereby said impact spring impacts said piston against the penetrating member forcing the penetrating member into said stratum corneum; and
a flexible finger on said body and a stop on said piston wherein said flexible finger and said stop comprise said interengaging latch members.

5. A device for impacting a penetrating member against the stratum corneum comprising:

a body having a first end and a second end;
said first end adapted to receive the penetrating member;
a piston slidably disposed within said body for impacting the penetrating member against the stratum corneum;
an impact spring adapted to provide an impact force to the piston and bias said piston out of said first end of said body; wherein said impact spring is energized when said piston is further disposed within said body;
a latching mechanism wherein said latching mechanism releasably engages said piston with said body after said piston has been sufficiently disposed within said body;
a releasing mechanism for disengaging said latching mechanism whereby said impact spring impacts said piston against the penetrating member forcing the penetrating member into said stratum corneum; and
wherein said releasing mechanism is adapted to release said piston after a force is exerted upon said releasing mechanism.

6. A device for impacting a penetrating member against the stratum corneum comprising:

a body having a first end and a second end;
said first end adapted to receive the penetrating member;
a piston slidably disposed within said body for impacting the penetrating member against the stratum corneum;
an impact spring adapted to provide an impact force to the piston and bias said piston out of said first end of said body; wherein said impact spring is energized when said piston is further disposed within said body;

a latching mechanism wherein said latching mechanism releasably engages said piston with said body after said piston has been sufficiently disposed within said body;

a releasing mechanism for disengaging said latching mechanism whereby said impact spring impacts said piston against the penetrating member forcing the penetrating member into said stratum corneum;

wherein said releasing mechanism is adapted to release said piston after a force is exerted upon said releasing mechanism; and wherein said latching mechanism and said piston releasing mechanism are adapted to allow one handed operation of each mechanism.

7. A device for impacting a penetrating member against the stratum corneum comprising:

a body having a first end and a second end;

said first end adapted to receive the penetrating member;

a piston slidably disposed within said body for impacting the penetrating member against the stratum corneum;

an impact spring adapted to provide an impact force to the piston and bias said piston out of said first end of said body; wherein said impact spring is energized when said piston is further disposed within said body;

a latching mechanism wherein said latching mechanism releasably engages said piston with said body after said piston has been sufficiently disposed within said body;

a releasing mechanism for disengaging said latching mechanism whereby said impact spring impacts said piston against the penetrating member forcing the penetrating member into said stratum corneum; and

a cap movably mounted on said body for activating the releasing mechanism when said cap moved onto said body; and wherein said releasing mechanism is adapted to release said piston after a force is exerted upon said releasing mechanism.

8. A device for impacting a penetrating member against the stratum corneum comprising:

a body having a first end and a second end;
said first end adapted to receive the penetrating member;
a piston slidably disposed within said body for impacting the penetrating member against the stratum corneum;
an impact spring adapted to provide an impact force to the piston and bias said piston out of said first end of said body; wherein said impact spring is energized when said piston is further disposed within said body;
a latching mechanism wherein said latching mechanism releasably engages said piston with said body after said piston has been sufficiently disposed within said body;
a releasing mechanism for disengaging said latching mechanism whereby said impact spring impacts said piston against the penetrating member forcing the penetrating member into said stratum corneum;
a cap movably mounted on said body for activating the releasing mechanism when said cap moved onto said body; and wherein said releasing mechanism is adapted to release said piston after a force is exerted upon said releasing mechanism; and
a hold down spring disposed between the body and the cap for resisting the activation of the release mechanism until said hold down spring has been sufficiently energized such that said hold down spring exerts a predetermined hold down force.

9. A device for impacting a penetrating member against the stratum corneum comprising:

a body having a first end and a second end;
said first end adapted to receive the penetrating member;
a piston slidably disposed within said body for impacting the penetrating member against the stratum corneum;
an impact spring adapted to provide an impact force to the piston and bias said piston out of said first end of said body; wherein said impact spring is energized when said piston is further disposed within said body;

a latching mechanism wherein said latching mechanism releasably engages said piston with said body after said piston has been sufficiently disposed within said body;

a releasing mechanism for disengaging said latching mechanism whereby said impact spring impacts said piston against the penetrating member forcing the penetrating member into said stratum corneum;

a cap movably mounted on said body for activating the releasing mechanism when said cap moved onto said body; and wherein said releasing mechanism is adapted to release said piston after a force is exerted upon said releasing mechanism; and

a lock mechanism for preventing movement of said cap relative to said body whereby activation of the release mechanism is prevented.

10. A device for impacting a penetrating member against the stratum corneum comprising:

a body having a first end and a second end;

said first end adapted to receive the penetrating member;

a piston slidably disposed within said body for impacting the penetrating member against the stratum corneum;

an impact spring adapted to provide an impact force to the piston and bias said piston out of said first end of said body; wherein said impact spring is energized when said piston is further disposed within said body;

a latching mechanism wherein said latching mechanism releasably engages said piston with said body after said piston has been sufficiently disposed within said body;

a releasing mechanism for disengaging said latching mechanism whereby said impact spring impacts said piston against the penetrating member forcing the penetrating member into said stratum corneum;

a cap movably mounted on said body for activating the releasing mechanism when said cap moved onto said body; and wherein said releasing mechanism is adapted to release said piston after a force is exerted upon said releasing mechanism;

a lock mechanism for preventing movement of said cap relative to said body whereby activation of the release mechanism is prevented; and
an indicator for indicating when said cap is in said locked position.

11. A device for impacting a penetrating member against the stratum corneum comprising:

a body having a first end and a second end;
said first end adapted to receive the penetrating member;
a piston slidably disposed within said body for impacting the penetrating member against the stratum corneum;
an impact spring adapted to provide an impact force to the piston and bias said piston out of said first end of said body; wherein said impact spring is energized when said piston is further disposed within said body;
a latching mechanism wherein said latching mechanism releasably engages said piston with said body after said piston has been sufficiently disposed within said body;
a releasing mechanism for disengaging said latching mechanism whereby said impact spring impacts said piston against the penetrating member forcing the penetrating member into said stratum corneum; and
wherein said latching mechanism automatically locks said piston in a cocked position with respect to said body when said piston has been sufficiently disposed within said body.

12. A device for impacting a penetrating member against the stratum corneum comprising:

a body having a first end and a second end;
said first end adapted to receive the penetrating member;
a piston slidably disposed within said body for impacting the penetrating member against the stratum corneum;
an impact spring adapted to provide an impact force to the piston and bias said piston out of said first end of said body; wherein said impact spring is energized when said piston is further disposed within said body;

a latching mechanism wherein said latching mechanism releasably engages said piston with said body after said piston has been sufficiently disposed within said body;

a releasing mechanism for disengaging said latching mechanism whereby said impact spring impacts said piston against the penetrating member forcing the penetrating member into said stratum corneum; and

wherein said piston includes an application surface having a shape and size which provides for an effective application of the specific patch to be impacted.

13. A device for impacting a penetrating member against the stratum corneum comprising:

a body having a first end and a second end;

said first end adapted to receive the penetrating member;

a piston slidably disposed within said body for impacting the penetrating member against the stratum corneum;

an impact spring adapted to provide an impact force to the piston and bias said piston out of said first end of said body; wherein said impact spring is energized when said piston is further disposed within said body;

a latching mechanism wherein said latching mechanism releasably engages said piston with said body after said piston has been sufficiently disposed within said body;

a releasing mechanism for disengaging said latching mechanism whereby said impact spring impacts said piston against the penetrating member forcing the penetrating member into said stratum corneum;

said piston further includes an application surface having a shape and size which provides for an effective application of the specific patch to be impacted; and

wherein said application surface has a shape selected from the group consisting of a convex shape, a substantially planar shape and a shape configured to mate with a predetermined body surface site.

14. A device for impacting a microblade array against the stratum corneum, the device comprising:

- a device body;
- a piston mounted within the device body, the piston having a microblade array applying surface;
- an impact spring acting between the device body and the piston to impact the stratum corneum with the microblade;
- a cap movably mounted on the device body;
- a hold down spring acting between the device body and the cap;
- a latching mechanism for locking the piston in a cocked position with one hand by compressing the device body and piston together; and
- a piston release for releasing the piston from the cocked position to impact the stratum corneum with the microblade array when the hold down spring is compressed.

15. A device for impacting a microblade array against the stratum corneum, the device comprising:

- a device body;
- a piston mounted within the device body, the piston having a microblade array applying surface;
- an impact spring acting between the device body and the piston to impact the stratum corneum with the microblade;
- a cap movably mounted on the device body;
- a hold down spring acting between the device body and the cap;
- a latching mechanism for locking the piston in a cocked position with one hand by compressing the device body and piston together; and
- a piston release comprising a release finger for releasing the piston from the cocked position to impact the stratum corneum with the microblade array when the hold down spring is compressed.

16. A device for impacting a microblade array against the stratum corneum, the device comprising:

- a device body;

a piston mounted within the device body, the piston having a microblade array applying surface;

an impact spring acting between the device body and the piston to impact the stratum corneum with the microblade;

a cap movably mounted on the device body;

a hold down spring acting between the device body and the cap;

a latching mechanism for locking the piston in a cocked position with one hand by compressing the device body and piston together; and

a piston release comprising a release finger for releasing the piston from the cocked position to impact the stratum corneum with the microblade array when the hold down spring is compressed.

17. A device for impacting a microblade array against the stratum corneum, the device comprising:

a device body;

a piston mounted within the device body, the piston having a microblade array applying surface;

an impact spring acting between the device body and the piston to impact the stratum corneum with the microblade;

a cap movably mounted on the device body;

a hold down spring acting between the device body and the cap, said hold down spring adapted to resist the activation of the piston release until a predetermined hold down force is reached;

a latching mechanism for locking the piston in a cocked position with one hand by compressing the device body and piston together; and

a piston release for releasing the piston from the cocked position to impact the stratum corneum with the microblade array when the hold down spring is compressed.

18. A method of cocking a device for impacting a penetrating member against the stratum corneum, the method comprising:

moving a piston to a cocked position with respect to a device body; and

locking the piston in the cocked position, whereby the device can be cocked and locked using only one hand.

19. A method of cocking a device for impacting a penetrating member against the stratum corneum, the method comprising:

moving a piston to a cocked position by moving the piston along the axis of the device body; and

locking said piston in the cocked position, wherein the device can be cocked and locked using only one hand.

20. A method of cocking a device for impacting a penetrating member against the stratum corneum, the method comprising:

moving a piston to a cocked position with respect to a device body; and

locking the piston in the cocked position, whereby the device can be cocked and automatically locked using only one hand.

21. A method of cocking a device for impacting a penetrating member against the stratum corneum, the method comprising:

moving a piston to a cocked position with respect to a device body; and

locking the piston in the cocked position, whereby the device can be cocked and manually locked using only one hand.

22. A method of impacting a penetrating member against the stratum corneum, the method comprising:

providing an impacting device having a device body, a piston, and an impact spring;

cocking the impacting device using only one hand by moving the piston and the device body together to a cocked position and locking the piston in the cocked position;

providing a penetrating member;

mounting said penetrating member on said piston; and

releasing said piston to impact the penetrating member against the stratum corneum.